TRANSLATOR'S DECLARATION

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No. 2003 - 028767

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and swear that the following is true translation of the certified copy to the best of my knowledge and belief.

Yoshio MATSUOLKA

Dared this day of October 12, 2006

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[Name of Document] Specification

[Title of the Invention] AN ADVERTISEMENT PRESENTING AND CHARGING SYSTEM

[CLAIMS]

[Claim 1] An advertisement presenting and charging system that displays an advertisement on a display device fixed to a motor vehicle to advertise the advertisement to many persons outside of the motor vehicle, the advertisement presenting and charging system being constructed so that the motor vehicle is equipped with a detecting device that is capable of detecting a running distance and a position of the motor vehicle, the display device receiving information from the detecting device, the display device being equipped with a timer device for detecting time, switching means being provided so as to shift between an operation and a non-operation of the display device, and the display device being provided with a communication unit for communicating with an automatic toll collecting system so as to charge an amount of advertisement payment from the display device, wherein

a plurality of advertisement contents are sent to the display device when the display device communicates with an automatic toll collecting system so that a person on the motor vehicle that displays an advertisement can select an advertisement, wherein

the display device can charge the amount of the advertise payment determined based on a traveling section, traveling time, and a traveling distance for the advertisement presented by the operation of the display device.

[Claim 2] An advertisement presenting and charging system according to claim 1, wherein

an amount of the advertisement charge is deducted from a toll for a toll road.

[Claim 3] An advertisement presenting and charging system (1) according to claims 1 or claim 2, wherein

the communication unit communicates with the display device when the motor vehicle enters the toll road, where data including the number of advertisements, an advertisement ID, an advertising provider's name, the number of advertisement characters, and the advertisement contents is sent to the display device, and

the display device communicates with the automatic toll collecting system when the motor vehicle goes out of the toll road, where data including the number of advertisements, the advertisement ID, the number of advertisement, advertisement time, and advertisement places is sent from the display device.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention belongs to a technical field of an advertisement presenting and charging system that presents advertisement by using a moving body such as a motor vehicle and charges according to the advertisement.

[0002]

[Description of the Prior Art]

In conventional advertisement systems using a moving body such as a

motor vehicle, there has been a system in which an advertisement is painted, pasted, or attached and easily detachably on a motor vehicle, for example, a bus and payment for the advertisement is made. Also used in recent years is a system, which enables real-time advertisement display in a route bus by using a communication means called as roadside communications based on Dedicated Short Range Communication (DSRC) to send data to the bus (refer, for example, patent reference 1).

[0003]

[Patent Reference] Japanese Patent Laid-open No. 2001 - 202455

[0004]

[Problem(s) to be Solved by the Invention]

In the conventional system, however, an advertising provider often demands of an advertising agency that the advertisement activity should cover predetermined traveling distance for displaying its advertisement. This demand has been a burden on and quota to be achieved to the advertising agency. On the other hand, the advertising provider can not grasp based on only the traveling distance how much advertisement effect has been produced.

[0005]

Further, in order to change advertisements timely, the conventional system needs new equipment of communication means, namely the infrastructure, and telephone charges or the like in order to obtain information through, for example, a cellular phone. Moreover, even the use of the DSRC system has a problem such as the need for installing new dedicated base stations.

[0006]

The present invention is made in view of the problems described above, and an object thereof is to provide an advertisement presenting and charging system that an advertising agency can make payment for an

advertisement determined based on a traveling section, a traveling distance, and time for presenting the advertisement, with the advertising being powerful especially on trafficy roads, and the device allowing the advertising agency to be free from burden due to paying toll-road charges and to feel easier when he or she runs on the toll roads.

[0007]

[Means for Solving the Problem]

In order to achieve the above-described object, according to the invention of claim1, there is provided an advertisement presenting and charging system an advertisement on a display device fixed to a motor vehicle to advertise the advertisement to many persons outside of the motor vehicle, the advertisement presenting and charging system being constructed so that the motor vehicle is equipped with a detecting device that is capable of detecting a running distance and a position of the motor vehicle, the display device receiving information from the detecting device, the display device being equipped with a timer device for detecting time, switching means being provided so as to shift between an operation and a non-operation of the display device, and the display device being provided with a communication unit for communicating with an automatic toll collecting system so as to charge an amount of advertisement payment from the display device. A plurality of advertisement contents are sent to the display device when the display device communicates with an automatic toll collecting system so that a person on the motor vehicle that displays an advertisement can select an advertisement. The display device can charge the amount of the advertise payment determined based on a traveling section, traveling time, and a traveling distance for the advertisement presented by the operation of the display device.

[0008]

According to the invention of claim 2, the amount of the advertisement charge is deducted from a toll for a toll road.

[0009]

According to the invention of claim 3, the communication unit communicates with the display device when the motor vehicle enters the toll road, where data including the number of advertisements, an advertisement ID, an advertising provider's name, the number of advertisement characters, and the advertisement contents is sent to the display device, and the display device communicates with the automatic toll collecting system when the motor vehicle goes out of the toll road, where data including the number of advertisements, the advertisement ID, the number of advertisement, advertisement time, and advertisement places is sent from the display device.

[0010]

[Operation and Effects of the Invention]

In the invention of claim 1, the motor vehicle communicates with the automatic toll collecting system, when it enters the toll road and when it goes out of the toll road, to obtain a plurality of advertisement contents. The person on the motor vehicle can select an advertisement contents and present the selected advertisement contents at a place where he or she wants to present it, and not present it at a place where he or she does not want, by operating the display device to be in operation or in non-operation. The advertisement presentation results in that a traveling section, traveling time and a traveling distance where the advertisement was presented can be identified based on information from the detecting device and from the timer device. The information on the traveling section , the traveling time, and the traveling distance is sent to the automatic toll collecting system through the communication. This allows the advertisement-payment charge determined according to the

advertisement contents, the traveling section, the traveling time, and the traveling distance, and the person who presented the advertisement can automatically obtain the advertisement payment. Therefore, an advertisement agency can pay it according to a detailed advertisement contents, with the payment being corresponded to actual advertisement effects.

In addition, the advertisement presented on a toll road in traffic congestion may bring its advertisement effects to be estimated higher, reducing irritation of passengers in traffic congestion. Further, on the advertising provider's side, the amount of payment can be set according to the advertisement, and thereby he or she can change his or her mood to be relaxed in traffic congestion.

[0011]

In the invention of claim 2, the amount of the advertisement charge is deducted from the toll for the toll road, which allows the driver to use the toll road at lower toll. This is preferable, because use of the toll roads can be accelerated, and traffic congestion can be reduced.

[0012]

In the invention of claim 3, the communication unit communicates with the display device when the motor vehicle enters the toll road, where data including the number of advertisements, an advertisement ID, an advertising provider's name, the number of advertisement characters, and the advertisement contents is sent to the display device, and the display device communicates with the automatic toll collecting system when the motor vehicle goes out of the toll road, where data including the number of advertisements, the advertisement ID, the number of advertisement, advertisement time, and advertisement places is sent from the display device.

Thereby, the kinds of advertisements presented while the vehicle is

running on the toll road are sent as the number of advertisements. The advertisement contents are identified by the advertisement ID. The number of advertisement times, the advertisement time, and the advertisement places are sent. Thus, it is possible to charge for the advertisement activity based on the actual advertisement conditions. In this manner, owing to the use of the automatic toll collecting system for toll road, the number of communication times and cost necessary for changing the advertisement contents and charging are reduced.

[0013]

[Embodiment of the Invention]

Hereinafter, an embodiment caring out an advertisement presenting and charging system of the present invention will be described according to those according to claims 1, 2 and 3 of the present invention.

[0014]

(Embodiment)

[0015]

First, a construction thereof will be described.

FIG. 1 is a block diagram of an advertisement presenting and charging system of an embodiment. FIG. 2 is a view showing the advertisement presenting and charging system of the embodiment. FIG. 3 is a view showing a display device advertisement presenting and charging system of the embodiment. FIG. 4 is a diagram explaining data which is sent from an automatic toll collecting system of the advertisement presenting and charging system of the embodiment to the display device. FIG. 5 is a diagram explaining data which is sent from the display device of the advertisement presenting and charging system of the embodiment to the automatic toll collecting system.

[0015]

Herein, ETC (registered trademark) used in the Specification is

abbreviated expressions of Electronic Toll Collection, and is one of the automatic toll collecting systems for toll road.

Explaining reference numbers used in FIGS. 1 to 5, 1 indicates an advertisement presenting and charging system, 11 indicates a display device, 12 is an operation switch (a means for switching between an operation and a non-operation of the display device), 13 indicates a timer device, 21 indicates an ETC unit, 22 indicates an ETC antenna (The ETC antenna acts also as a communication device for communicating with an automatic toll collecting system), 23 indicates an ETC fixed station, 24 indicates an ETC fixed station side antenna, 31 indicates a vehicle speed sensor (a detecting device), 32 indicates a navigation device (the detecting device), 33 indicates an instrument C/U (the detecting device), 4 indicates a credit company, 5 indicates a motor vehicle, 51 indicates a rear window, 6 indicates entrance data, 61 indicates the number of advertisement, 62 indicates an advertisement ID, 63 indicates an advertising providers' names, 64 indicates the number of advertisement characters, 65 indicates advertisement contents, 7 indicates exit data, 71 indicates the number of the advertisements, 72 indicates an advertisement ID, 74 indicates advertisement carrying-out time, and 75 indicates places of the advertisement.

[0017]

In the advertisement presenting and charging system 1 of the embodiment, it allows a motor vehicle to pass through a toll gate by using Dedicated Short Range Communication when the motor vehicle enters a toll road from a general road and when the motor vehicle exits a toll road to a general road, as shown in FIGS. 1 and 2. The Dedicated Short Range Communication is one for communicating between the motor vehicle and the ETC fixed station 23, where the ETC unit 21 installed on the motor vehicle with the ETC antenna 22 of the ETC unit 21 can communicate

with the ETC fixed station 23 with the ETC fixed station side antennas 23 of ETC gates respectively installed on an entrance and an exit of a toll road as shown in FIG. 2. The ETC fixed station 23 and the credit company 4 have a contract with each other, in which a credit card, a card exclusively for ETC, or the like of a driver on the motor vehicle can be used through communication between them.

[0018]

As shown in FIG. 3, the display device 11 is installed on the motor vehicle so as to present a display from an inner side of the rear window 51 toward an outer side thereof. The display device 11 has a large number of LEDs arranged thereon and displays characters and graphics by the combination of their light spots.

[0019]

The display device 11 has a controller, not shown, provided therein, and is connected to the ETC unit 21 and the display device 11 so that the Dedicated Short Range Communication can be used to exchange data between the display device 11 and the ETC fixed station 23 via the ETC unit 21 and the ETC antenna 22.

The display device 11 further has an operation switch 12, which is operated by a passenger on the motor vehicle, and a timer device 13 for counting time.

On the motor vehicle, an in-vehicle communication line is further provided so as to communicate among on-board devices. The in-vehicle communication line is connected to the vehicle speed sensor 31, a navigation device 32, and the instrument C/U 33. These on-board devices are connected to the in-vehicle communication line and the display device 11. By this communication, the display device 11 obtains a vehicle speed from the vehicle speed sensor 31, obtains information on a vehicle position from the navigation device 32, and obtains information

on a travel distance from the instrument C/U 33.

[0020]

The entrance data 6 that the motor vehicle obtains from the ETC fixed station 23 by using the Dedicated Short Range Communication when the motor vehicle enters the toll road includes, as shown in FIG. 4, identifiers, ETC entrance data, and advertisement data. The advertisement data includes the number of advertisements 61 indicating how many advertisement data are included, advertisement IDs 62 for identification of the kinds of advertisements, advertising providers' names 6 showing the company names of advertising providers, the number of advertisement characters 64 that is used for a display process and a charging process, and advertisement contents 65 being the contents actually displayed.

[0021]

The exit data 7 that the motor vehicle sends to the ETC fixed station 23 by using the Dedicated Short Range Communication when the motor vehicle goes out of the toll road includes, as shown in FIG. 5, identifiers, ETC exit data, and display data. The display data includes the number of advertisements 71 indicating how many kinds of advertisements have been presented, advertisement IDs 72 for identification of the kinds of advertisements, the number of advertisement times 73 indicating how many times the advertisement contents 65 have been displayed, the advertisement carrying-out time 74 indicating the time when the advertisement was displayed, and advertisement places 75 showing where the advertisement was displayed.

[0022]

Next, the operation thereof will be described.

[0023]

[Operation of obtaining data when entering a toll road]

In order to use the advertisement presenting and charging system 1 and

ETC system, an owner of the motor vehicle makes a contract with the credit company 4 in advance so that a toll for a toll road is deducted based on data from the ETC fixed station 23 from his/her credit card.

When the motor vehicle enters the toll road from a general road, the motor vehicle is allowed to pass through an ETC entrance gate without stopping. This passing-through reduces traffic congestion at the entrance of the toll road. Namely, as the motor vehicle enters a predetermined area near the ETC entrance gate, wireless communication is started between the ETC fixed station side antenna 24 provided at the ETC entrance gate and the ETC antenna 22 of the motor vehicle 5. Through this communication, the ETC unit 21 and the display device 11 obtain entrance data 6 shown in FIG. 4 from the ETC fixed station 23.

[0024]

ETC entrance data contained in the entrance data 6 is obtained and used by the ETC unit 21, and advertisement data contained in the entrance data 6 is used by the display device 11.

[0025]

Thus, the display device 11 obtains the data necessary for the advertisement at the same time when the communication for ETC is performed.

[0026]

[Advertisement Operation by the Display Device]

In order to the passenger of the motor vehicle starts the advertisement activity after the motor vehicle enters the toll road without stopping, he/she operates the operation switch 12 to select a desired advertisement based on the advertising providers' names 63 and the advertisement contents 65 of the plural obtained advertisements and to input the activation of the display. The passenger can enjoy the advertisement activity because of such selectivity, by himself/herself, of the

advertisement.

In response to the input operation of the activation, the display device 11 starts to display the selected advertisement contents 65 by the light spots of many LEDs so that the display can be seen from behind the motor vehicle, as shown in FIG. 3. Thus, the advertisement is presented to passengers of motor vehicles running behind it.

[0027]

The Display of the advertisement using by the display device 11 can be stopped at any time by the passenger's operation of the operation switch 12. When the advertisement display is started, the display device 11 obtains the advertisement carrying-out time 74 based on time inputted from the timer device 13 and the vehicle position information from the navigation device 32. It further obtains the traveling distance data from the instrument C/U 33. The display device 11 also obtains the traveling distance based on the vehicle speed from the vehicle speed sensor 31 and map information from the navigation device 32.

[0028]

The advertisement thus displayed by the display device 11 has a high advertisement effect when the toll road is congested with motor vehicles since many motor vehicles follow the motor vehicle having the display device 11 mounted thereon. The vehicle speed at the time of the advertisement display used by the display device 11 is stored for use in certifying the high advertisement effect.

Especially when the traffic is heavy, the advertisement can give some diversion to passengers of the following motor vehicles and make them relaxed. On the advertising agency, too, the congestion leads to the longer display and higher effect of the advertisement, which increases payment for its advertisement, consequently reducing a toll for the toll road and a driver's irritation.

[0029]

[Data Output Operation When exiting the Toll Road]

When the motor vehicle 5, having thus presented the advertisement, goes out of the toll road to a general road, it passes through the ETC exit gate without stopping. At this time, it communicates with the ETC fixed station 23 so that a toll for the toll road can be charged by ETC. Namely, the exit data 7, constituted of the ETC exit data outputted from the ETC unit 21 and the display data outputted from the display device 11, is transmitted from the motor vehicle to the ETC fixed station 23 via the ETC antenna 22 and the ETC fixed station side antenna 24 provided at the ETC exit gate.

The display data, not shown, includes vehicle speed and the traveling distance when the advertisement was presented, which makes it possible to grasp individual condition during advertising even when the advertisement was displayed a plurality of times.

[0030]

Such simultaneous communication for the advertisement activity with the communication for ETC toll charging for the toll road results in reduced equipment cost.

[0031]

[Charging Operation According to Each condition]

In the above-described manner, the ETC fixed station 23 can obtain the advertisement contents 65, the advertisement time, the traveling distance, the vehicle position, the vehicle speed when the advertisement was presented, and so on. Therefore, the charged amount can be set based on the obtained conditions involved with the actual advertisement effect. The payment is made with the ETC credit card, or by deducting from the toll for the toll road that is paid through the use of ETC. Besides, by the obtained conditions, the advertising provider can grasp whether the

advertisement had a high effect due to the congestion or it did not have a high effect due to relatively high speed running on the toll road.

[0032]

Next, the effects thereof will be described.

[0033]

The advertisement presenting and charging system 1 of the embodiment can bring about the following advantages.

[0034]

(1) The advertisement presenting and charging system 1 is constructed as follows. The display device 11 attached to a motor vehicle displays an advertisement to outside the motor vehicle. The instrument C/U 33 and the navigator 32 are provided in the motor vehicle, and the display device 11 obtains information from the instrument C/U 33 and the navigator 32. The display device 11 has the timer 13 detecting time and the operation switch 12 for changeover between operation and non-operation of the display device 11. The display device 11 is connected to the ETC unit 21 and the ETC antenna 22. When communicating with the ETC fixed station 23, the display device 11 obtains the plural advertisement data so that an advertising agency is allowed to select the advertisement contents, and to charge for the advertisement according to the traveling section (places), traveling time, traveling distance for the advertisement actually presented by the display device 11. Therefore, on the advertising provider's side, amount of payment can be set according to the detailed contents of the advertisement so as to be more commensurate with the actual advertisement effect. On the other hand, on the advertising agency's side, irritation of passengers during traffic congestion is reduced because the amount of payment increases due to traffic congestion.

[0035]

(2) An amount corresponding to the payment for the advertisement is

deducted from a toll for a toll road, so that only a low toll is required for using the toll road. This can accelerate use of toll roads and reduce traffic congestion.

[0036]

(3) The entrance data, including the number of advertisements 61, the advertisement IDs 62, the advertising providers' names 63, the number of advertisement characters 64, the advertisement contents 65, is sent from the ETC fixed station 23 to the display device 11 through the communication with the ETC system when a motor vehicle enters a toll road. The exit data, including the number of advertisements 71, the advertisement IDs 72, the number of advertisement times 73, the advertisement carrying-out time 74, and the advertisement places 75, is sent from the display device 11 to the ETC fixed station 23 through the communication with the ETC system when the motor vehicle 5 goes out of the toll road. Therefore, owing to the use of the ETC system, this system 1 can reduce the number of communication times and cost necessary for changing the advertisement contents and charging and cost of equipment.

[0037]

FIG. 6 is another example of a display device of the embodiment. In FIG. 6, 8 indicates many LEDs provided on a wiper, 9 indicates a display device, 101 indicates afterglow, and 102 is characters displayed by using the afterglow. Specifically, the wiper 52 has a large number of LED groups 8, and the LED groups 8 are controlled by a display control device 9. When the wiper 52 is operated, light emission by the LED groups 8 generates afterglow 101 in conjunction with the movement of the wiper 52 to display characters 102. In this manner, conspicuous and eye-catching display is made possible.

[0038]

In the foregoing, the advertisement presenting and charging system of the present invention has been described based on the embodiments. However, the specific configuration is not limited to these embodiments, and any change, addition and so on in design are embraced therein without departing from the spirit of the present invention according to the claims.

[0039]

For example, the ETC is used as the automatic toll collecting system for toll road in the embodiment, but a different system may be used.

[0040]

Further, the exit data 7 may be constituted of the number of advertisements 71, the advertisement IDs 72, the number of advertisement times 73, the advertisement carrying-out time 74, and the advertisement places 75.

[Brief Description of the Drawings]

[FIG. 1] FIG. 1 is a block diagram of an advertisement presenting and charging system of an embodiment.

[FIG. 2] FIG. 2 is a view explaining the advertisement presenting and charging system of an embodiment.

[FIG. 3] FIG. 3 is a view explaining a display device of the advertisement presenting and charging system of the embodiment.

[FIG. 4] FIG. 4 is a diagram showing data sent from an automatic toll collecting system for toll road to the display device of the advertisement presenting and charging system of the embodiment.

[FIG. 5] FIG. 5 is a diagram showing data sent from the display device to the automatic toll collecting system for toll road of the advertisement presenting and charging system of the embodiment.

[FIG. 6] FIG. 6 is a view showing another example of the display device of the advertisement presenting and charging system of the embodiment.

[Description of Reference Numbers]

1	advertisement presenting and charging system
11	display device
12	operation switch
13	timer device
21	ETC unit
22	ETC antenna
23	ETC fixed station
24	ETC fixed station side antenna
31	vehicle sensor
32	navigation device
33	instrument C/U
4	credit company
5	vehicle
51	rear window
6	entrance data
61	the number of advertisements
62	advertisement ID
63	advertising providers' name
64	the number of advertisement characters
65	advertisement contents
7	exit data
71	the number of advertisements
72	advertisement ID
73	the number of advertisement times
74	advertisement carrying-out time
75	advertisement place
52	wiper
8	(on-wiper provided many) LEDs

9 display device

101 afterglow

102 characters (displayed by using the afterglow)

[Name of Document] ABSTRACT

[Abstract]

[Problem(s)] To provide an advertisement presenting and charging system in which an amount of advertisement payment can be paid to a driver on a motor vehicle having displayed an advertisement according to a traveling section, traveling time, traveling distance for the advertisement actually presented, and especially high advertisement effects can be obtained in traffic congestion with irritation during traffic congestion being reduced.

[Means for Solving] A motor vehicle is installed with an instrument C/U 33 and a navigation device 32. A display device 11 obtains information from the instrument C/U 33 and the navigation device 32. A timer device 13 for detecting time is provided on the display device 11. An operation switch 12 is provided so as to shift an operation and a non-operation of the display device 11. An ETC unit 21 and an ETC antenna 22 is connected to the display device 11, so that they can data on a plurality of advertisements to the display device 11 when they are in communication with an ETC fixed station 23.

[Selected Drawing] FIG. 1

FIG. 1

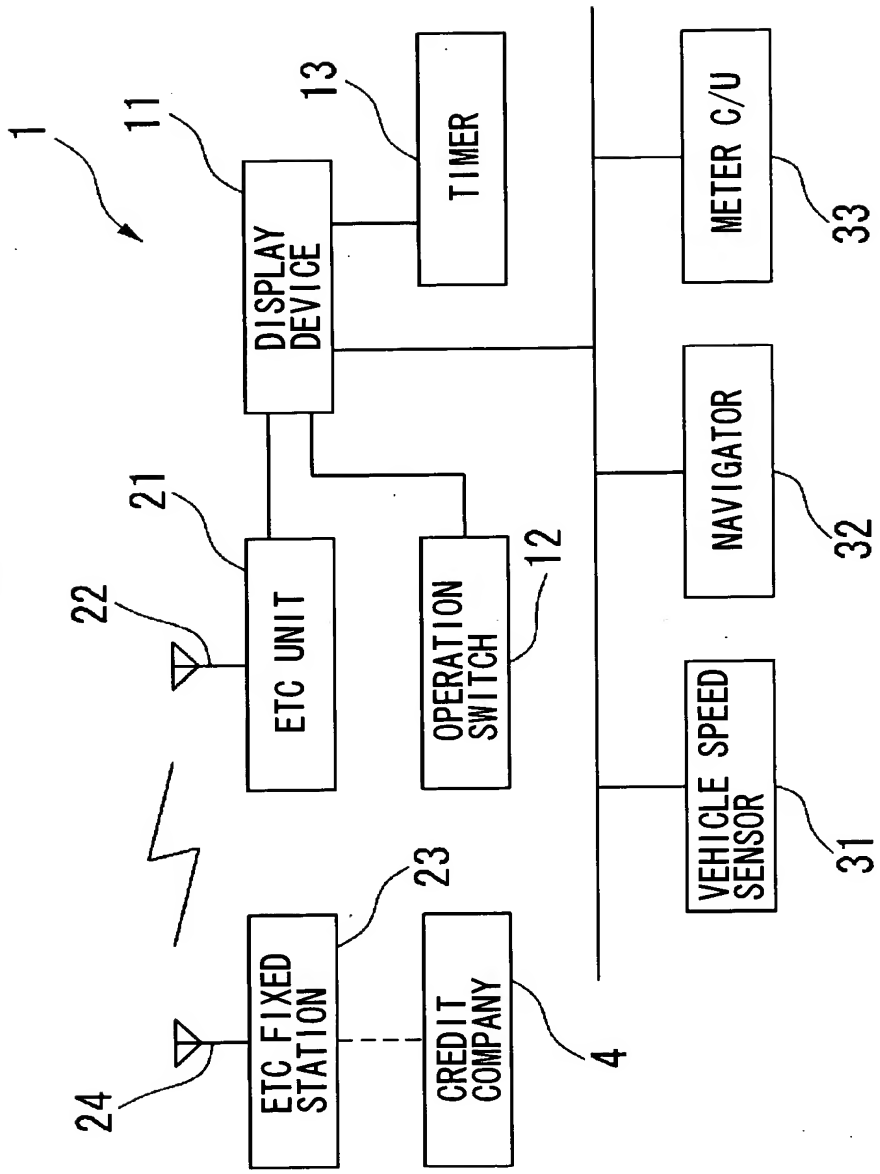

FIG. 2

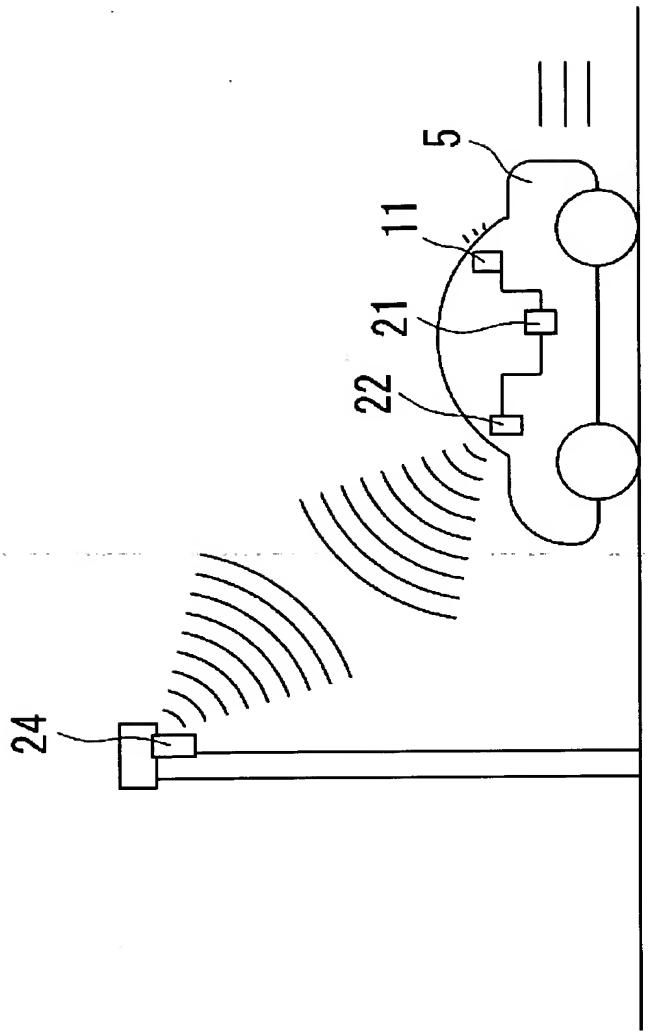

FIG. 3

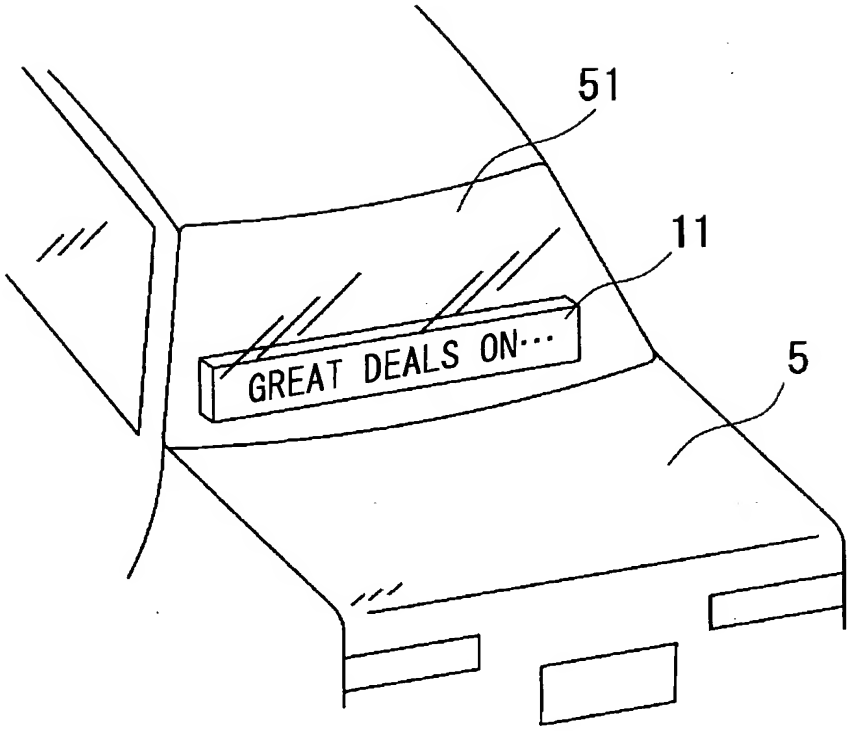

FIG. 4

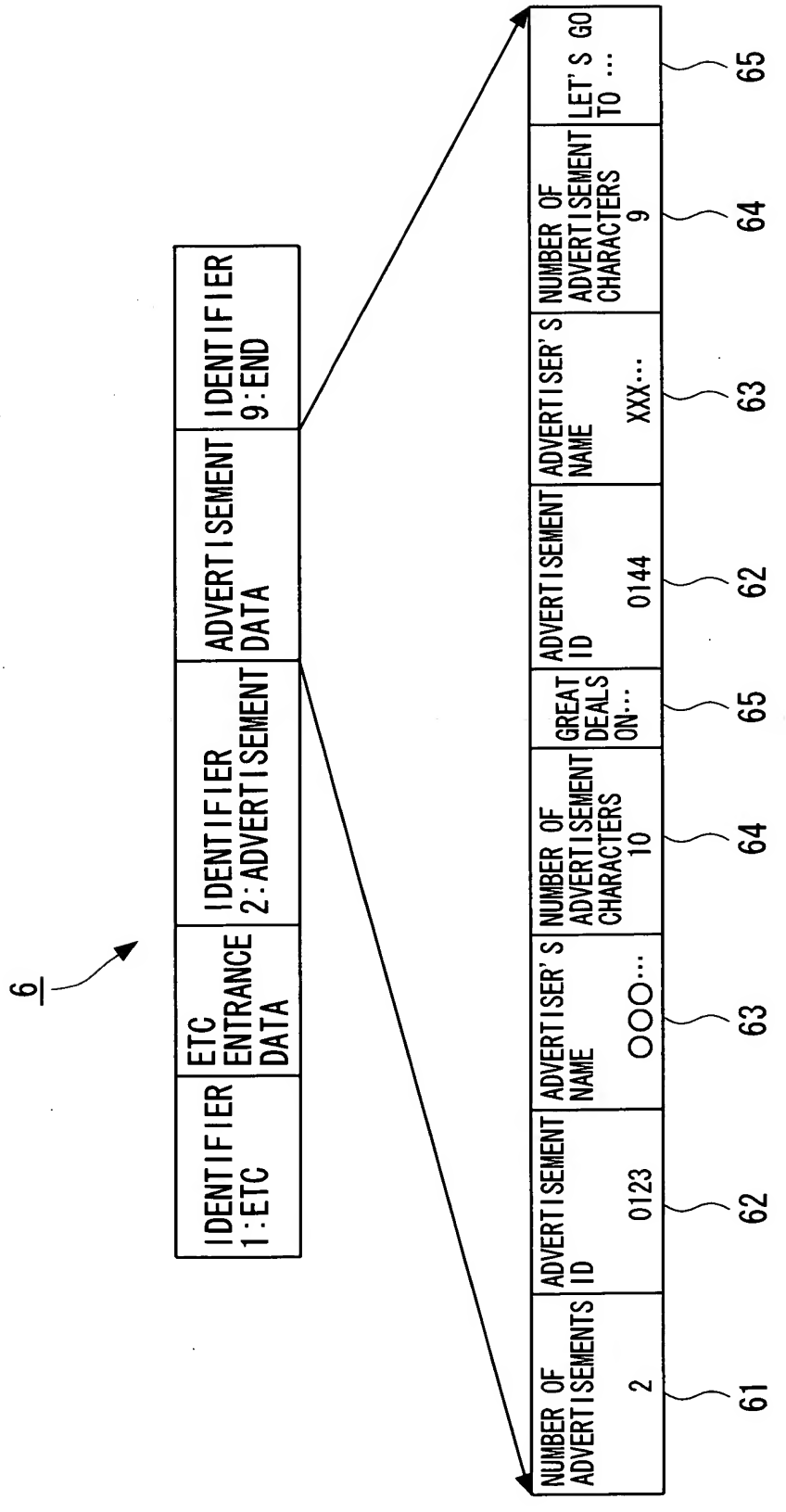
6
IDENTIFIER 1:ETC
ETC ENTRANCE DATA
IDENTIFIER 2:ADVERTISEMENT
ADVERTISEMENT DATA
IDENTIFIER 9:END
NUMBER OF ADVERTISEMENTS
2
61
ADVERTISEMENT ID
0123
62
ADVERTISER'S NAME
OOO…
63
NUMBER OF ADVERTISEMENT CHARACTERS
10
64
GREAT DEALS ON…
65
ADVERTISEMENT ID
0144
62
ADVERTISER'S NAME
XXX…
63
NUMBER OF ADVERTISEMENT CHARACTERS
9
64
LET'S GO TO …
65

FIG. 5

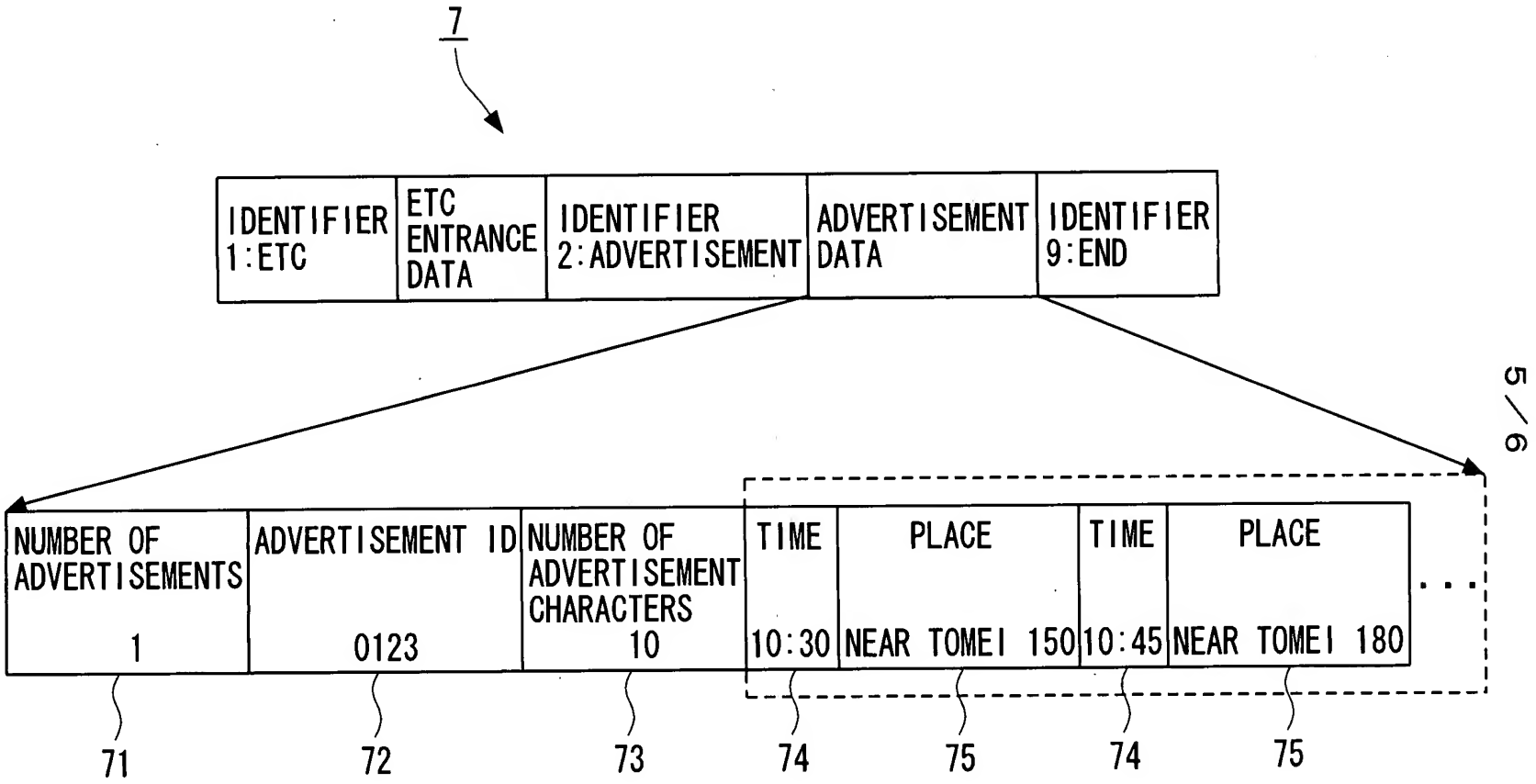
7
IDENTIFIER 1:ETC
ETC ENTRANCE DATA
IDENTIFIER 2:ADVERTISEMENT
ADVERTISEMENT DATA
IDENTIFIER 9:END
5/6
NUMBER OF ADVERTISEMENTS
1
ADVERTISEMENT ID
0123
NUMBER OF ADVERTISEMENT CHARACTERS
10
TIME
10:30
PLACE
NEAR TOMEI 150
TIME
10:45
PLACE
NEAR TOMEI 180
71
72
73
74
75
74
75

FIG. 6